

Continuing Professional Education/Business & Industry Training

IT Strategic Plan

Introduction

The lack of knowledgeable workers in information technology and the impact of new technology on business needs has become a key focus of workforce development initiatives nationwide. For employers, the issue of understanding the impact of the ever-changing field of information technology is as much of an issue as their difficulty of attracting and retaining quality IT workers. Also, as job tools become more computerized, workers in every area need basic computer skills to remain viable in the workforce.

The Business and Industry Department (B & I) and the Continuing Professional Education Department (CPE) researched and begun formulating a plan to address these needs in the Columbus State Community College service area. While CPE is suited to address the learning needs of individuals in the workforce, B & I has a long history of meeting the training and development needs of the business community. By working in tandem, these two departments will be able to holistically address the Workforce Development issues concerning informational technology specific to this community.

Current State

In the past, the Public Seminars catalog comprised B&I's primary IT-related programming for contract customers. B&I is currently moving from a reactive business model (waiting for customer requests) to a more proactive marketing and product offering strategy to seek out new customers and new contacts within existing customer organizations. CPE is currently in its early stages of becoming a competitor in delivering open enrollment technical training, primarily delivering low tech or end user training and more recently the Cisco Academy. To date, B&I has conducted the following types of IT training on either an open-enrollment or contract basis:

End-user computer training

- Keyboarding
- Computer literacy
- Internet skills
- Microsoft Office (Word, Excel, PowerPoint, Access)
- Microsoft FrontPage (Web authoring)
- Microsoft Outlook (email)
- Microsoft Project (project management software)
- Corel Office Suite (WordPerfect, Quattro Pro, Paradox)
- ACT! 2000 (sales force automation)
- Desktop publishing with PageMaker

Specialized computer training

- AutoCAD

Contract training for IT professionals

- C++ programming (limited)
- Netware administration (limited)
- A+ Certification
- NT 4.0 MCSE
- Certified Internet Webmaster

Open enrollment courses for IT professionals

In the past, B&I has offered and administered the following open-enrollment certification programs. In order to properly align our services, CPE will be administering these and future open-enrollment programs. This transition is occurring from July through September of 2001. However, B&I will continue to offer these courses on a contract basis.

- NT 4.0 MCSE (retired for open-enrollment) (6 courses)
- Windows 2000 MCSE (7 courses)
- A+ Certification
- Network+ Certification
- Web Technologies (to be replaced with Certified Internet Webmaster)

Customer needs: Market research

To guide both CPE's and B&I's offerings, we have conducted primary and secondary market research to determine potential offerings. This research included a survey of the literature as well as focus groups with industry representatives.

Information Technology: Needs and Challenges

Research conducted by Enterprise Ohio uncovered two distinct but related types of information technology needs in business and government. IT *needs* refer to hiring needs for information technology workers. These workers are typically technical specialists with skills in areas such as technical support, networking, database development and administration, digital media, or software development. IT *challenges* refer to organizational hurdles and difficulties involved in working with technology, which in many cases include incumbent worker training or both end-users and technology staff.

Demographics

The greater Columbus area is currently experiencing rapid growth relative to other communities its size in the state of Ohio. As of 2000, the greater Columbus metropolitan area had a population of 1,499,800¹, giving it a national rank of 41st in size. All counties in the Columbus State service area experienced rapid growth from 1990 to 2000, as shown in Table 1.

¹ *Demographics USA, County Edition, 2000*, ed. Jane Walsh, Claritas/Market Solutions, 2000, p. 15-2.

Table 1

County	1990 population	2000 population	Pop. Increase	Pop. Increase (%)
Franklin	961437	1068978	107541	11.2
Delaware	66929	109989	43060	64.3
Union	31969	40909	8940	28
Madison	37068	40213	3145	8.5
Totals	1099393	1262089	162696	14.8

Source: U.S. Census, 1990 and 2000

Fueling this growth is a booming employment market. Despite the recent economic slowdown, Greater Columbus continues to sustain an unemployment rate of under 3%. As of March, 2001, Columbus' unemployment rate of 2.9% compared favorably with the national rate of 4.2%.²

² Greater Columbus Chamber of Commerce.

Employment

Looking more closely at employment, Greater Columbus boasts a total of 659,918 employees working in 35,932 establishments³. The top types of establishments, by total number of workers in each segment, are:

Table 2

Type of establishment	Number of establishments	Number of workers in segment	Avg. number of workers per establishment
Services ⁴	13,769	230,610	16.7
Retail Trade	8,393	149,269	17.8
Government (all levels)	N/A	c. 140,938 ⁵	N/A
Manufacturing	1,587	83,209	52.4
Finance, Insurance, and Real Estate	3,949	74,170	18.8
Wholesale Trade	2,733	46,796	17.1
Health and Social Assistance ⁶	2820	37,189	13.2
Transportation and Public Utilities	1,431	36,988	25.8
Construction	3,340	33,973	10.2

Columbus' employment market is highly white-collar, as shown on the table below. These positions typically require the use of information technology.

Table 3⁷

Blue collar positions/ % of total	White collar positions/ % of total	Total positions
197,024 21.4%	546,894 59.5%	919,677

Education

Given that Greater Columbus' workplace is predominantly white-collar, the workforce's educational attainment is surprisingly low. According to the 2000 census, nearly half (48.1%) of Franklin County individuals over 25 have no education beyond high school, and only 32.2% have a college degree (Associate's or higher).

³ *Demographics USA*, p. 15-54 and 15-63. These totals do not reflect the categories *Government (all levels)* or *Health and Social Assistance*.

⁴ Includes health services, food services, legal and personal services, maintenance, and building services.

⁵ Total of government workers reflects number of positions in government rather than actual number of employees. It is included in this table for completeness and comparison purposes.

⁶ 2000 County and City Extra, 9th Edition, Ed. Deirdre A. Gaquin and Katherine A. DeBrandt, Berman Press, 2000. Reflects 1997 figures.

⁷ *Demographics USA*, p. 15-63.

Technology needs

Few data exist for technology needs in the Greater Columbus area, but Enterprise Ohio studies did reveal that information technology job growth in an area including both Columbus and Dayton is expected to be 79.9% for the 10-year period 1996-2006⁸. This refers specifically to positions supporting, developing, and maintaining technology, and not technology-enabled workers.

Learner Preferences

Open-enrollment customers typically prefer evening courses, 1-2 nights per week and/or weekends because they are currently employed. Contract training customers require different formats depending on their specific needs. In focus group research, we discovered a disconnect between the needs of some customers and the services provided by commercial IT training providers. Most commercial programs are structured as multiple-day intensives (typically 30-40 hours/4-5 days); the potential contract customers we spoke to feel this leads to information overload. There is strong interest in longer-term courses meeting for 2-4 hours per session to allow employees to assimilate and apply knowledge learned from courses. This disconnect represents an opportunity for Columbus State to provide courses in formats not typically available in the training marketplace.

We have noted some interest in e-learning options for information technology, particularly among value-conscious open-enrollment customers and, in the contract arena, the healthcare field. However, it was clear that customer preferences diverge widely on this topic. There was some suggestion that customers saw e-learning as more appropriate for end-user computer training than high-end systems and developer training programs.

IT recruiting needs

IT recruiting needs would typically be filled through workforce development: by providing training opportunities for career-changers, career advancers, and others seeking to enter the IT field. These needs, therefore, should guide the development of new open-enrollment programs by the CPE department.

- Support technicians
- Networking technicians
- IT generalists with skills in tech support, networking, programming, and documentation. This need is particularly strong in small businesses.
- Skilled, experienced programmers, especially with formal training in programming methodologies and enterprise development tools (all languages)
- Digital media (Web authoring) specialists
- Database administrators and designers
- AS/400 programmers

⁸ *Information Technology Skills: Ohio Employers' Labor Demand; Implications for EnterpriseOhio Network Campus-Wide Leadership*, Joint Center for Policy Research (JCPR) of Lorain County Community College, 2001, pp. 11-12

End-user training needs

B & I and CPE need to further investigate new and innovative ways to offer end-user training that is attractive to both business clients and the Public Seminar Market. More market data needs to be captured on this topic. Most existing data centers around high-end or certification needs. At this time, we suggest the following:

- Shorter, topical, modular software skills courses. Instead of 7-hour general-purpose training, contract customers are looking for 2-4 hour modules on topics such as mail merges, reports, and business letters.
- General computer literacy courses. Corporate customers have noted that younger workers often have adequate skills coming in, but incumbents often require additional training and motivation to learn basic computer skills.
- Not-for-profits are seeking training on nonprofit tracking and reporting systems

Technology skills training for management professionals

This is a new area that has emerged from literature and focus groups. There is a need for broad-level technical training for managers and other business professionals that need to better utilize technology in meeting business objectives and goals. These professionals do not need to understand the nuts and bolts of how to make the technology work, but need to understand how it can be applied to business needs.

- Databases
- Networks
- Programming methodology
- E-commerce/E-business/Internet
- Financial and accounting systems
- Budgeting for technology
- Choosing/managing an IT vendor
- IT project management
- Network security
- Enterprise Resource Planning systems (Peoplesoft, Baan)

Soft skills for IT professionals

This is another new area that has emerged from literature. IT professionals often have excellent technical skills but lack business, interpersonal, and management skills needed to function effectively in a business environment. There is an opportunity to fill that gap with training.

- Customer service
- IT project management
- Effective meetings
- Communication skills
- Teamwork
- Business planning
- Management skills
- Budgeting for technology

Technology support/development skills for IT professionals

The following is a list of potential contract training opportunities for organizations, based on feedback from focus groups as well as secondary research. B&I is in the first stage of marketing IT services in general and will revise this list based on response from potential customers. Many of these same programs may be of interest to open-enrollment customers.

Technical support

- A+ certification
- Network+ certification

Network administration

- Microsoft MCSE certification
- Novell CNA/CNE certification
- Cisco CCNA/CCNP/CCIE certification
- Linux (LPI or SAIR) certification
- Firewalls/Network security
- TCP/IP (general)
- Routing (general)
- Wireless networking

Programming

- Java
- Perl
- Visual Basic
- C, C++
- C#
- Cobol
- MCSD Certification

Other needs

In focus groups, potential customers expressed a desire to partner more actively with CSCC through apprenticeship, internship, and placement programs to fill their demand for skilled IT workers. There was frustration with a perceived lack of effort on CSCC's part to pursue these kinds of programs. Neither B&I nor CPE has the resources to offer placement or internship programs, so this information should be disseminated to credit departments and others who may be interested in further developing these kinds of programs.

Groupware/Messaging

- Lotus Notes development and administration
- Microsoft Exchange administration

Web technologies

- HTML
- DHTML
- XML
- Javascript
- VBScript
- Streaming media
- Microsoft IIS web server administration
- Apache web server administration
- ASP
- Cold Fusion
- CIW Certification

Databases

- SQL
- Oracle
- DB2

Future state and action plan

The following goals are a guide to getting CPE and B & I started in the right direction. It is key to the success of Columbus State Community College that our plan remains flexible and dynamic so that we can grow and change with the ever-evolving economic needs of our community. Columbus appears to be a strong market for contract information technology training. Nearly 60% of positions in Columbus are white-collar and concentrated in areas such as administrative support, government, professional specialties, and government, historically strong consumers of technology. The workforce shortage and low overall level of educational attainment in Columbus point to a high potential need for contract training. In addition, the high anticipated level of growth in information technology jobs indicates an ongoing need for training.

Note: This plan reflects the needs of currently employed individuals, either incumbent workers or career-changers. In the future, we hope to coordinate our efforts with Transitional Workforce and Entrepreneur Workforce to further address the needs of the larger learner community.

Goal 1.0: Create mechanisms to coordinate and share resources, market, develop programs, and partner between the Business & Industry and Continuing Professional Education Departments, resulting in the appearance of one cohesive resource to the customer for IT related education by January 31, 2002.

<u>Action Step</u>	<u>Date</u>
1.1 Migrate open-enrollment MCSE and A+ programs to CPE.	5/01
1.2 Initiate ongoing monthly joint meetings between the Technical Programs Coordinators of both CPE and B& I, having at least 4 by Sept. 1, 2001	5/01
1.3 Formulate a procedure for directing incoming calls to be directed to the appropriate department immediately.	6/01
1.4 Develop a single IT training website that directs customers by market need and program, rather than by CSCC organizational structure.	11/01

Goal 2.0: Identify customers' IT training needs and develop programs to meet them.

<u>Action Step</u>	<u>Date</u>
2.1 Review secondary research: trade magazines and other publications	Ongoing
2.2 Participate in conferences and industry organizations to keep abreast of trends in information technology	4/01-
2.3 Conduct focus groups by industry to identify client needs (completed)	5/01
2.4 Establish CEWD IT Advisory Council	8/01
2.5 Continually monitor enrollment figures and demographic data for open enrollment classes.	Ongoing

Goal 3.0: By April 2002, develop and initiate a comprehensive joint marketing plan and ongoing strategy that will target both individuals and contract training customers and include:

- Development of specific marketing media, including a single website
- Consortia membership, such as ITC or MOTC

<u>Action Step</u>	<u>Date</u>
3.1 Finalize MOTC relationship (complete)	5/01
3.2 Develop and deploy B&I lead-generation piece by direct mail (complete)	6/01
3.3 Followup on responses to lead-generation piece	6/01-ongoing
3.4 Collaborate with Marketing to develop a plan to develop materials and strategies that reflect the scope of IT related programs/services available to individual and corporate customers.	7/01
3.5 Comprehensive marketing strategy implemented	10/01
3.6 Create a joint website created	11/01
3.7 Develop a joint Public Seminar Catalog that minimizes duplication of programs and directs individuals to the correct contact and enrollment information	8/02

Goal 4.0: Define and establish standard communication processes between credit & non-credit computer program areas for the purpose of matriculation and collaboration by December 31, 2001.

<u>Action Step</u>	<u>Date</u>
4.1 Evaluate current credit offerings (complete).	4/01
4.2 Suggest the creation of an Intracampus IT Education & Training Forum via the Technology Strategic Planning Committee meeting to provide a mechanism for collaboration in meeting the IT learning needs of credit and non credit learners.	6/01
4.3 Matriculate CIW certification to existing credit courses (in progress)	6/01
4.4 Re-evaluate current credit offerings and matriculation between credit and non-credit programs.	4/02

Goal 5.0: Expand learning options by developing 10 new programs in the areas of certification, IT Business skills, end user training, and related skills by February 28, 2001. Continue to seek out vendor partnerships to expand catalog of offerings.

<u>Action Step</u>	<u>Date</u>
5.1 Offer Certified Internet Webmaster certification to corporate customer	6/01
5.2 Explore partnering options with Sybase for contract training.	8/01
5.3 Add the following open-enrollment curricula and market to both open-enrollment and contract customers: Associate Technology Specialist, Certified Netware Administrator, and Cisco C.C.N.P. Certification.	9/01
5.4 Add the following contract curricula and market to contract customers: Strategic Technology Skills for Business Professionals and Soft Skills for IT Professionals.	9/01
5.5 Implementation of CISCO/UNIX training, and web-delivered CISCO training.	10/01
5.6 Add Oracle and Linux training to our portfolio of training offerings.	11/01
5.7 Offer and deliver series of modularized contract end-user courses (i. e. Mass Mailings using MS Office 2000) that provide quick solutions to specific business needs.	1/02
5.8 Work with P.M.I to deliver P.M.P. preparation training.	2/02

Goal 6.0: Integrate e-learning delivery methods, such as through the ACT Center and Skills Max, to augment our current and future IT training offerings by October 31, 2001. (This needs to be done in conjunction with development of an overall strategy to bring e learning options to individual and corporate clients through a variety of methods, including web-based learning , video conferencing, etc.)

<u>Action Step</u>	<u>Date</u>
6.1 Deploy I/TECH portal deployed (complete).	4/01
6.2 Pursue customizable e-learning options, including Blackboard, for open-enrollment and contract training needs.	6/01
6.3 Include ACT advertising statement in Public Seminar catalog.	7/01
6.4 Apply to become an Enterprise Ohio Skills Max Service Center	6/01
6.5 Implement Skills Max Service Center (if application is accepted)	8/01
6.5 Select ACT courses that best match or compliment current offerings	11/01

Programs in existence

IT-related programs at CSCC credit and non-credit

Program name	Sponsoring Department	Contact	Prerequisites	Notes
Professional Development Seminars (formerly known as Public Seminars)	B&I	Enrollment: James Mustard x5463 Catalog production, technical info, and financials: Aaron Minnick x5075	None	Includes MOUS (Microsoft Office User Specialist), Competency Builders, General Knowledge Listings available on Web at http://www.cscce.edu/docs/workforce/pdseminars/
Professional Development Seminars	CPE	Enrollment: x5997 Catalog Production, Financials: Fred Baker, General development Dave Watts	None	Electronic Signature, under development
A+	CPE (open-enrollment) B&I (contract)	CPE: Dave Watts x5787 B&I: Aaron Minnick x5075	Basic computer literacy (1-2 years computer use), spoken and written English at high school level	Basic hardware and software support for PC's. Meets at Southeast Center (Groveport). Entry-level IT certification program primarily for career changers. CSCC offers classes only; we do not currently offer testing. Listings available on Web at http://www.cscce.edu/docs/Workforce/cert/
Network+ Networking Fundamentals	CPE (open-enrollment) B&I (contract)	CPE: Dave Watts x5787 B&I: Aaron Minnick x5075	Recommended A+ or equivalent skills	Entry-level networking certification. Also prerequisite for MCSE program. Not the same as the old NT 4.0 Networking Essentials class.

Program name	Sponsoring Department	Contact	Prerequisites	Notes
I-Net+ Web Technologies (Discontinued)	B&I	Aaron Minnick x5075	Recommended 1-2 years as IT support professional	CSCC offers classes only; we do not currently offer testing. Listings available on Web at http://www.cscce.edu/docs/Workforce/cert/
Web authoring	<ul style="list-style-type: none"> • B&I (non-credit) • Computer Science (credit) • Multimedia Communications (credit) 	B&I: Aaron Minnick x5075 Computer Science: Main # x5376 Multimedia Production Technology: John Lundquist x5647	Varies	<p>Program discontinued as of 8/01.</p> <p>I-Net+ available alone, or as part of 4-course Web Technologies program.</p> <p>I-Net+ alone is entry-level Internet certification, including basic Web authoring and Internet architecture</p> <p>Full Web Technologies program teaches students to build a working business-to-consumer (B2C) e-commerce site. Includes SQL database and ASP (Active Server Pages).</p> <p>CSCC offers classes only; we do not currently offer testing.</p> <p>Listings available on Web at http://www.cscce.edu/docs/Workforce/cert/</p> <p>B&I</p> <p>FrontPage 2000 (part of Professional Development Seminars) requires basic computer literacy and word processing skills. Teaches basic web authoring with MS FrontPage.</p> <p>Web Technologies: see separate entry</p> <p>Computer Science</p> <p>Emphasis on Web programming with HTML, Dynamic HTML, and Javascript</p> <p>Multimedia Communications</p> <p>Emphasis on graphical and design elements of</p>

Program name	Sponsoring Department	Contact	Prerequisites	Notes
Java programming C++ programming Visual Basic programming	B&I (noncredit) Computer Science (credit)	B&I: Aaron Minnick x5075 Computer Science: Main # x5376	B&I: Varies Computer Science: see catalog	Web development B&I: Contract only. Currently not offered as open-enrollment. Compute Science: See catalog
Microsoft Office, MOUS (Microsoft Office User Specialist)	B&I	Enrollment: James Mustard x5463 Catalog production, technical info, and financials: Andrea Vicars x2480	None	Part of Professional Development Seminars. Microsoft approved curricula CSCC offers classes only; we do not currently offer testing.
MCP (Microsoft Certified Professional) MCSE (Microsoft Certified Systems Engineer)	CPE (open-enrollment) B&I (contract)	CPE: Dave Watts x5787 B&I: Aaron Minnick x5075	A+ recommended for individuals without professional IT experience. MCSE curriculum includes Networking Fundamentals/Network+ class. This can be waived for professionals with 1-2 years networking experience.	Systems administration certification program focusing on Windows 2000 network operating system. Designed for individuals with moderate to high level of computer proficiency. Microsoft official curriculum CSCC offers classes only; we do not currently offer testing. Listings available on Web at http://www.cscce.edu/docs/Workforce/cert/
MCSD (Microsoft Certified Solutions Developer)	B&I	Aaron Minnick x5075	1-2 years programming experience	Contract only. Currently not offered as open-enrollment.
MCDBA (Microsoft Certified Database Administrator)	B&I	Aaron Minnick x5075	Varies	Contract only. Currently not offered as open-enrollment.
C-Tech	CPE	Dave Watts x5787	None	Fiber-optic and copper cabling, open-enrollment
Cisco CCNA	CPE	Dave Watts x5787	Basic computer literacy	Networking certification program covering Cisco

Program name	Sponsoring Department	Contact	Prerequisites	Notes
Cisco Academy				networking products; open-enrollment Cisco official curriculum CCNA Test Preparation CCNP Test Preparation Unix sponsored curriculum Web Development Sponsored Curriculum Listings available on Web at http://www.cscce.edu/docs/Workforce/cert/
Computer Literacy Basic PC use, etc.	<ul style="list-style-type: none"> • B&I (non-credit, 1-day seminar) • CPE (non-credit, multiple days/evenings) • Computer Science (credit) 	B&I: James Mustard x5463 CPE: Main # x5997 Computer Science: Main # x5376		B&I: Part of Professional Development Seminars. CPE: multi-day/night format Computer Science: CPT 101 class (requires CSCC enrollment/registration)
CIW Certification Program	CPE (open-enrollment) B&I (contract)	CPE: Dave Watts x5787 B&I: Aaron Minnick x5075	Basic Computer Literacy	Web Development Certification Program from ProSoft/Computer Prep 3 Track Program: Foundations or I-Net+ required for all 3 tracks
PC Hardware/Software Installation and Maintenance Certificate	Computer Science Department MCT AS program	Computer Science: Main # x5376	None	Total 28 Hour program: 7 hrs basic education 21 Hours technical
Networking and Distributed Systems Certificate	Computer Science Department CPT AS Program	Computer Science: Main # x5376	None	Total 31 Hour program: 7 hrs basic education, 24 Hours technical
Computer Electronics Major	Electronic Engineering Technology		None	Total 109 Hour Program: 44 Hours non-tech, 65 Hours Tech

Program name	Sponsoring Department	Contact	Prerequisites	Notes
AS400 Programming Language Certificate	Computer Science Department CPT AS400 Curriculum	Computer Science: Main # x5376	None	Total Tech credit hours: 24
AS400 Operations certificate	Computer Science Department CPT AS Program	Computer Science: Main # x5376	None	Total tech credit hours: 9
Oject Oriented Programming Certificate	Computer Science Department CPT AS Program	Computer Science: Main # x5376	None	Total tech credit hours: 25
PC Specialist Certificate	Microcomputer Technology Department AS Program	Computer Science: Main # x5376	None	Total certificate credit hours